

CLAIMS

What is claimed is:

1. A method for performing thread scheduling, the method comprising:
 - receiving thread objective data including a performance objective;
 - sampling performance metric data points, wherein each data point varies as a function of scheduling quantum values;
 - calculating a new scheduling quantum value by processing the performance metric data points according to the performance objective; and
 - adjusting a current scheduling quantum value to the new scheduling quantum value.
2. The method of claim 1, wherein sampling the performance metric data points includes sampling a performance metric value at predetermined scheduling quantum values.
3. The method of claim 1, including using a sliding window to define a set of sampled performance metric data points during real-time sampling, and calculating the new scheduling quantum value includes using the defined set of sampled performance metric data points.
4. The method of claim 3, wherein the performance objective is to determine the new scheduling quantum value corresponding to a minimum of the set of sampled performance metric data points.

5. The method of claim 3, wherein the performance objective is to determine the new scheduling quantum value corresponding to a maximum of the set of sampled performance metric data points.

6. The method of claim 3, wherein the performance objective is to determine the new scheduling quantum value corresponding to an average of the set of sampled performance metric data points.

7. A method for performing thread scheduling for multiple threads, the method comprising:

- receiving thread objective data for a plurality of threads, including a performance objective for each of the plurality of threads;

- sampling performance metric data points specific to a performance metric type of each thread of the plurality of threads, wherein each of the corresponding performance metric data points varies as a function of scheduling quantum values;

- determining a new performance objective based upon the performance objective for each of the plurality of threads;

- calculating a new scheduling quantum value by processing the performance metric data points for each thread according to the new performance objective; and

- adjusting a current scheduling quantum value to the new scheduling quantum value.

8. The method of claim 7, wherein the processing the performance metric data points for each thread according to the new performance objective includes combining each

function corresponding to each thread's performance metric data points to produce a new performance metric function.

9. The method of claim 7, wherein determining the new performance objective includes choosing a performance objective corresponding to a thread with a highest priority among the plurality of threads.

10. A system, comprising:

- a scheduling quantum optimizer;

- a thread metric module to provide thread objective data including a performance objective to the scheduling quantum optimizer; and

- a performance collector module to sample performance metric data points and provide the performance metric data points to the scheduling quantum optimizer, wherein each performance metric data point varies as a function of scheduling quantum values;

- the scheduling quantum optimizer to process the performance metric data points according to the performance objective to provide a new scheduling quantum value to a process manager, wherein the process manager is to adjust a current scheduling quantum value to the new scheduling quantum value.

11. The system of claim 10, wherein to sample performance metric data points, the performance collector module is operable to sample a performance metric value at predetermined scheduling quantum values.

12. The system of claim 10, wherein to process the performance metric data points, the scheduling quantum optimizer is operable to use a sliding window that defines a set of

sampled performance metric data points during real-time sampling to calculate the new scheduling quantum value.

13. The system of claim 12, wherein the performance objective is to determine a scheduling quantum value corresponding to a minimum of the set of sampled performance metric data points.

14. The system of claim 12, wherein the performance objective is to determine a scheduling quantum value corresponding to a maximum of the set of sampled performance metric data points.

15. The system of claim 12, wherein the performance objective is to determine a scheduling quantum value corresponding to an average of the set of sampled performance metric data points.

16. A system, comprising:

 a scheduling quantum optimizer;

 a thread metric module to provide thread objective data for a plurality of threads, including a performance objective for each of the plurality of threads to the scheduling quantum optimizer; and

 a performance collector module to sample performance metric data points specific to a performance metric type of each thread of the plurality of threads, wherein each of the corresponding performance metric data points varies as a function of scheduling quantum values;

the scheduling quantum optimizer to determine a new performance objective based upon the performance objective for each of the plurality of threads and to process the performance metric data points each thread of the plurality of threads according to the new performance objective to provide a new scheduling quantum value to a process manager, wherein the process manager is to adjust a current scheduling quantum value to the new scheduling quantum value.

17. The system of claim 16, wherein to process the performance metric data points for each thread according to the new performance objective, the scheduling quantum optimizer is to combine each function corresponding to performance metric data points for each thread to produce a new performance metric function.

18. The system of claim 16, wherein to determine the new performance objective, the scheduling quantum optimizer is to select a performance objective corresponding to the thread with a highest priority among the plurality of threads.

19. A machine-accessible medium that provides instructions that, if executed by a machine, will cause the machine to perform operations comprising:

- receiving thread objective data including a performance objective;
- sampling performance metric data points, wherein each data point varies as a function of scheduling quantum values;
- calculating a new scheduling quantum value by processing the performance metric data points according to the performance objective; and
- adjusting a current scheduling quantum value to the new scheduling quantum value.

20. The machine readable medium of claim 19, wherein the instructions for executing the method to perform thread scheduling are coded into an operating system.

21. The machine readable medium of claim 19, wherein the instructions for executing the method to perform thread scheduling are coded into a high level application.

22. The machine readable medium of claim 21, wherein the high level application is layered above an operating system as a system service.

23. The machine readable medium of claim 19, wherein sampling the performance metric data points includes sampling a performance metric value at predetermined scheduling quantum values.

24. The machine readable medium of claim 19, including using a sliding window to define a set of sampled performance metric data points during real-time sampling, and calculating the new scheduling quantum value includes using the defined set of sampled performance metric data points

25. The machine readable medium of claim 19, wherein the performance objective is to determine the improved scheduling quantum value corresponding to a reduced performance metric value.

26. The machine readable medium of claim 19, wherein the performance objective is to determine the improved scheduling quantum value corresponding to an increased performance metric value.

27. The machine readable medium of claim 19, wherein the performance objective is to determine the improved scheduling quantum value corresponding to an average performance metric value.

28. A machine-accessible medium that provides instructions that, if executed by a machine, will cause the machine to perform operations comprising:

- receiving thread objective data for a plurality of threads, including a performance objective for each of the plurality of threads;

- sampling performance metric data points specific to a performance metric type of each thread of the plurality of threads, wherein each of the performance metric data points varies as a function of scheduling quantum values;

- determining a new performance objective based upon the performance objective for each of the plurality threads;

- calculating a new scheduling quantum value by processing the performance metric data points for each thread according to the new performance objective; and

- adjusting a current scheduling quantum value to the new scheduling quantum value.

29. The machine readable medium of claim 28, wherein processing the performance metric data points for each thread according to the new performance objective includes

combining each function corresponding to each thread's performance metric data points to produce a new performance metric function.

30. The machine readable medium of claim 29, wherein determining the new performance objective includes choosing a performance objective corresponding to a thread with a highest priority among the plurality of threads.

31. A portable media device, comprising;

a memory module to store data;

a processor to access data stored in the memory module to receive thread objective data including a performance objective, to sample performance metric data points, wherein each data point varies as a function of scheduling quantum values, to process the performance metric data points according to the performance objective to calculate a new scheduling quantum value, and to adjust a current scheduling quantum value to the new scheduling quantum value; and

one of a battery and fuel cell to power the portable media device, including the processor and the memory.

32. The portable media device of claim 31, wherein to process the performance metric data points, the processor is operable to use a sliding window that defines a set of sampled performance metric data points during real-time sampling to calculate the new scheduling quantum value.

33. The portable media device of claim 32, wherein the performance objective is to determine a scheduling quantum value corresponding to a minimum of the set of sampled performance metric data points.

34. A portable media device, comprising;

a memory module;

a processor to access data stored in the memory module to receive thread objective data for a plurality of threads including a performance objective for each thread of the plurality of threads, to sample performance metric data points specific to a performance metric type of each thread of the plurality of threads, wherein each data point varies as a function of scheduling quantum values, to determine a new performance objective based upon the performance objective for each of the plurality of threads, to process the performance metric data points for each thread according to the new performance objective to calculate a new scheduling quantum value, and to adjust a current scheduling quantum value to the new scheduling quantum value; and

one of a battery and fuel cell to power the portable media device, including the processor and the memory.

35. The system of claim 34, wherein to process the performance metric data points for each thread according to the new performance objective, the processor is to combine each function corresponding to performance metric data points for each thread to produce a new performance metric function.

36. The system of claim 34, wherein to determine the new performance objective, the processor is to select a performance objective corresponding to a thread with a highest priority among the plurality of threads.